

### Remarks

This amendment is submitted in response to the Official Action mailed December 6, 2011. Claims 1, 12-17, 19, 20, 22, 24, and 25 are pending. Claims 2-11, 18, 21, and 23 are canceled. Claims 1 and 24 are amended to recite “domains” instead of “nano-domains”. Support for this amendment is found in the originally-filed application at, for example, Figures 1 and 2. Claim 1 is also amended to recite that the PC has a melt flow of an injection molding grade PC. The use of injection molding grade PC is disclosed in the originally-filed application at, for example, page 4, line 27. Claim 15 is amended to more particularly define the method as including a step of extruding the polymer blend into a mold so that the PC phase of the immiscible polymer blend consists essentially of fiber-shaped domains having a length-wise dimension aligned essentially parallel in the HDPE matrix phase. Support for this amendment is found in the originally-filed application at, for example, page 9, lines 20-32 and Figures 1 and 2. Claim 16 is amended in view of the amendment to claim 15. No new matter is added.

Claims 1, 12-20, 22, 24, and 25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claim 14 of copending U.S. Serial No. 12/295,574. Applicants request that all issues regarding the instant double patenting rejection be held in abeyance until other substantive matters are resolved.

Turning to the Official Action, claims 1, 12-20, 22, 24, and 25 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. The Office Action contends that:

[T]here is no detail in the specification regarding the specific materials used except that they pertain to HDPE and polycarbonate (for instance specific melt flow rates, type of polycarbonate, etc) nor is the method of actually forming the blends disclosed. While possibly many of these factors have no bearing on forming blends with applicants characteristics it can not be concluded that any blend showing positive deviation from the law of mixtures in the figures can be said to have applicants characteristics nor is it clear how to choose materials to produce blends having applicants characteristics given the disclosure of Leclair.

With regard to applicants characteristic in lines 5-7 of claim 1 and 24, note Xu, newly cited disclosing 20/80 PC/HDPE blends with applicants MFR (see experimental on page 1088) but nonetheless discloses that the domains formed are not parallel . . . . As applicants disclose nothing more than Xu for producing compositions with the characteristic at lines 5-7 of claims 1 and 24, this characteristic is not enabled.

(Office Action, Pages 4-5).

However, the Office Action presents an improper enablement analysis. According to M.P.E.P. § 2164.01: “The standard for determining whether the specification meets the enablement requirement was cast in the Supreme Court decision of *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916) which postured the question: is the experimentation needed to practice the invention undue or unreasonable? That standard is still the one to be applied. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).” M.P.E.P. § 2164.01(a) further states that, “There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is ‘undue.’ These factors include, but are not limited to:

- (A)The breadth of the claims;
- (B)The nature of the invention;
- (C)The state of the prior art;
- (D)The level of one of ordinary skill;
- (E)The level of predictability in the art;
- (F)The amount of direction provided by the inventor;
- (G)The existence of working examples; and
- (H)The quantity of experimentation needed to make or use the invention based on the content of the disclosure.”(citing *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)).

“It is improper to conclude that a disclosure is not enabling based on an analysis of only one of the above factors while ignoring one or more of the others. The Examiner’s analysis must consider all the evidence related to each of these factors, and any conclusion of nonenablement must be based on the evidence as a whole.” (*Id.* citing 858 F.2d at 737, 740, 8 USPQ2d at 1404, 1407).

Contrary to the Federal Circuit’s mandate in *In re Wands*, the present Office Action fails to provide an analysis of all *In re Wands* factors. The Office Action merely contends that claims 1,

12-20, 22, 24, and 25 are not enabled in view of Leclair which teaches compositions having a modulus which is the same or even substantially less than the additive contribution of the polymeric components when prepared using a compression molding technique or in view of Xu which teaches non-parallel domains when prepared using an extrusion technique followed by hot stretching. Therefore, Applicants respectfully request the withdrawal of this improper enablement rejection.

Applicants note that the present application recites a preferred extrusion process at, for example, page 9, lines 20-32. As inventor Dr. Thomas Nosker states in his Declaration under 37 C.F.R. § 1.132, submitted herewith, it is this preferred technique of extruding the polymer blend into a mold that provides the presently-claimed structural and mechanical properties. Leclair is limited to compression molding. Furthermore, Xu is limited to a technique that incorporates hot stretching of an extruded blend and does not extrude the blend into a mold. Therefore, no inference about extruding a polymer blend into a mold can be drawn from Leclair or Xu. Because both Leclair and Xu fail to disclose or suggest the composition of the present invention and the preferred method for preparing the composition, Applicants respectfully request the withdrawal of all rejections in view of the Leclair and Xu references.

Claims 1, 12-14, 20, 24, and 25 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Office Action contends that “Applicants combination of limitations regarding melt flow, concentrations, and ‘additive contribution’ are new matter. As noted above, claim 1 is amended to recite that the PC has a melt flow of an injection molding grade PC. Claim 24 already contains this limitation. According to the Office Action issued March 4, 2011, “The Examiner agrees that support exists for ‘injection molding grade PC’ and this limitation is not new matter nor would claims 1 and 15 contain any new matter if limited solely to PC and HDPE . . . .” (See, Office Action, page 6). With respect to claim 24, the March 4, 2011 Office Action states that “the only [new matter] issue [with respect to claim 24] is use of ‘injection molding grade’ ABS and mixtures.” (See, Office Action, pages 5-6). All claims are now limited to HDPE and PC melt flow rates and concentrations for which the “greater than additive contribution” is demonstrated. Therefore, this rejection is respectfully traversed.

Additionally, claims 1 and 24 are rejected for containing the term “nano-domains”. This term has been replaced with “domains,” which is supported by Figures 1 and 2. Claims 1 and 24 are also rejected for not limiting the weight percent ratios to 10/90 PC/HDPE. Dr. Nosker states in Paragraph 11 of his Declaration:

As shown in Figure 5 of the present application, weight percent ratios of 10/90; 20/80; 30/70; and 40/60 PC/HDPE all possess a modulus greater than the additive contribution of each polymer to overall stiffness. This is the result of sufficient fiber-shaped domains having a length-wise dimension being aligned essentially parallel in the HDPE. This alignment is produced by extrusion of the blended polymers into a mold, wherein the alignment is first formed by extrusion and then retained by the mold as the blend cools. The combination of extrusion and molding is essential, and the combination is not shown in any of the publications of record.

In view of Figures 1, 2, and 5, sufficient support exists for PC/HDPE ratios other than 10/90. Therefore, this rejection is respectfully traversed.

The Office Action contends that the application does “not contain any disclosure regarding alignment of nano domains”. (See, Office Action, page 6). However, it is well-settled that there is no *in haec verba* requirement and claim limitations may be supported through implicit or inherent disclosure. As explained by Dr. Nosker in Paragraphs 6-8 of his Declaration:

6. Figures 1 and 2 of the present application demonstrate that the polymer blend contains fiber-shaped domains having a length-wise dimension aligned essentially parallel in the HDPE.
7. Figure 1 of the present application is a scanning electron microscopy (SEM) photograph of an immiscible polymer blend of the present invention. Submitted herewith as Exhibit A is a marked-up version of the identical image in which arrows are used to point out the fiber-shaped domains having a length-wise dimension aligned essentially parallel in the HDPE.
8. Figure 2 of the present application is another scanning electron microscopy (SEM) photograph of an immiscible polymer blend of the present invention. The SEM photograph of Figure 2 was taken from a perspective perpendicular to the parallel fiber-shaped domains. Figure 2 contains lighter shaded rounded domains. The rounded domains shown in Figure 2 are end portions of the essentially parallel fiber-shaped domains.

Therefore, Figures 1 and 2 provide adequate support for the concept of fiber-shaped domains having a length-wise dimension aligned essentially parallel in HDPE. This rejection is respectfully traversed.

The Office Action also alleges that claim 15 has not been amended so that it is limited to the descriptive support depicted in Figures 1 and 2. As noted above, claim 15 is currently amended to recite "that the PC phase of said immiscible polymer blend consists essentially of fiber-shaped domains having a length-wise dimension aligned essentially parallel in said HDPE matrix phase".

The Office Action also contends that parallel domains are an inherent feature of the Leclair compositions. However, as noted above, the Leclair compositions possess a modulus which is the same or even substantially less than the additive contribution of the polymeric components when prepared using a compression molding technique. Dr. Nosker explains in his Declaration that a modulus greater than the additive contribution of each polymer to overall stiffness is the result of sufficient fiber-shaped domains having a length-wise dimension being aligned essentially parallel in the HDPE. Because the Leclair compositions do not exhibit a modulus greater than the additive contribution, it necessarily follows that the Leclair compositions do not contain the presently claimed aligned fiber-shaped domains. Furthermore, as Dr. Nosker also notes, this alignment is produced by extrusion of the blended polymers into a mold, wherein the alignment is first formed by extrusion and then retained by the mold as the blend cools. The Leclair compositions are produced via a compression molding process, not extrusion into a mold. This is yet another reason why the aligned fiber-shaped domains would not be expected to be present in the Leclair compositions.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-1943, under Order No. 070439.00026 from which the undersigned is authorized to draw.

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Respectfully submitted,

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